

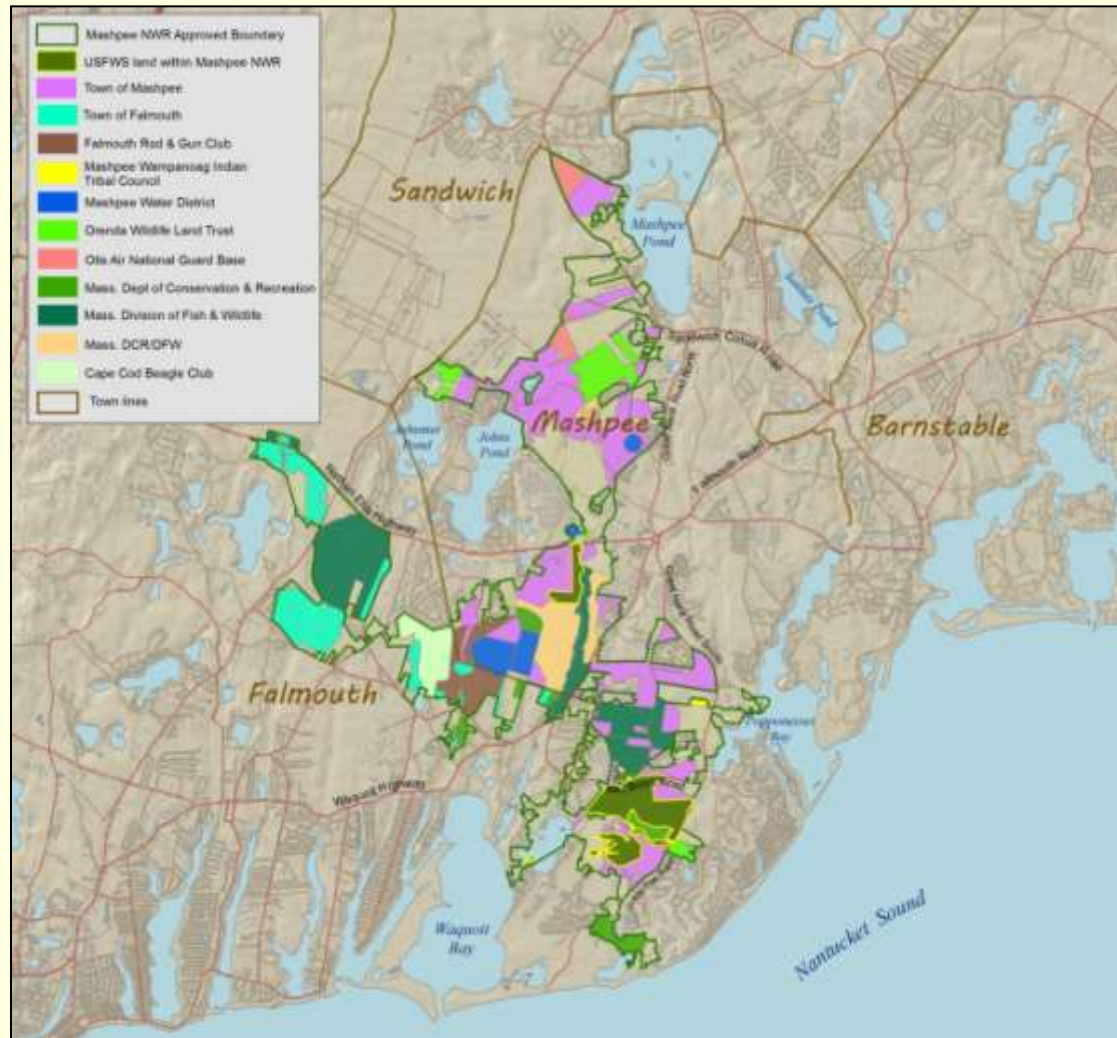
Mashpee National Wildlife Refuge

***A
bright spot
for declining
wildlife***



U.S. Fish & Wildlife Service

Mashpee NWR – A Partnership Refuge



U.S. Fish & Wildlife Service

New England Cottontail Current Range

Eastern cottontails introduced to MA in large numbers in 1920s-30s

New England Cottontail

State endangered:

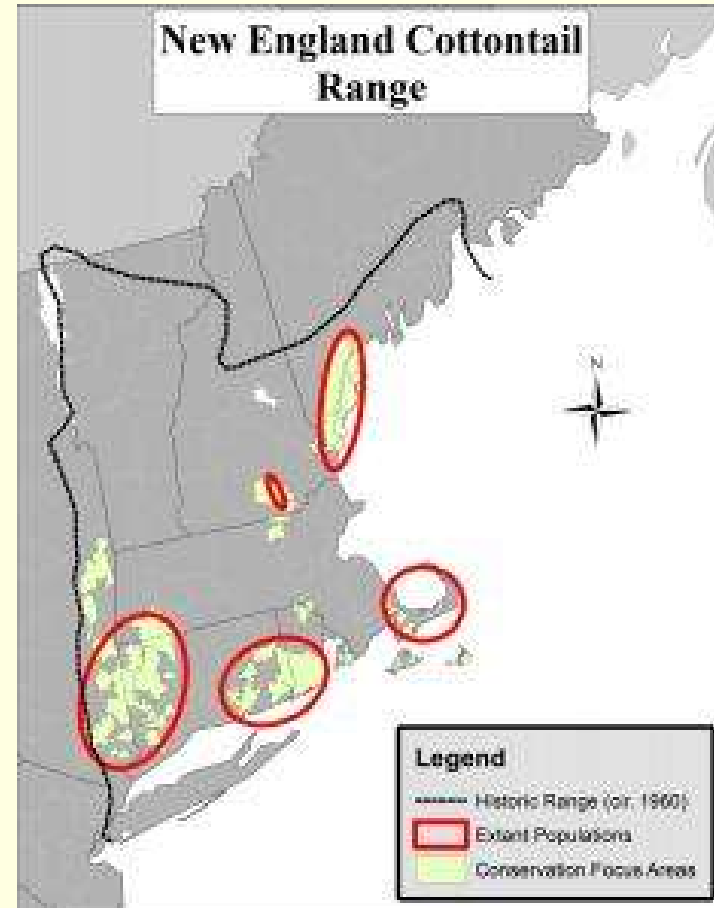
- Maine
- New Hampshire

Conservation Concern:

- Massachusetts
- Connecticut
- New York
- Rhode Island
- Federal

No longer found in:

- Vermont

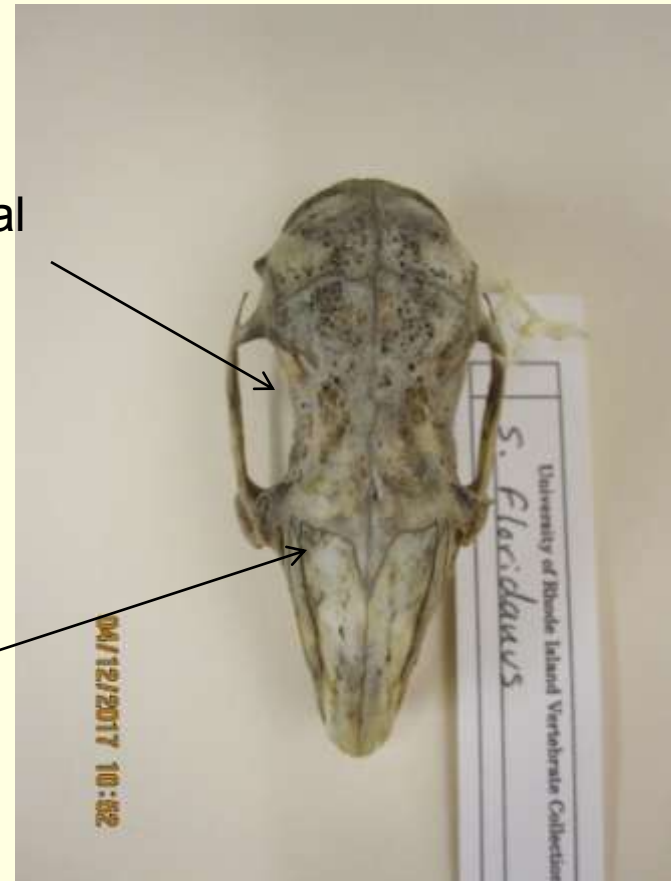


New England Cottontail and Eastern cottontail – Is there a difference?



Postorbital
process

Nasal
suture



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The Wood Rabbit

Habitat: Thicket, young forest, forested swamp, and even saltmarshes

Threats: Habitat loss due to development, fragmentation and forest succession



New England Cottontail Status

Candidate species in 2006

Conservation Strategy for the New England Cottontail – finalized in 2012

Outlined habitat and population goals for each state

Over 4,000 acres of habitat have been restored

Removed from listing in 2015 due to ongoing and future conservation actions



Conservation Strategy
for the
New England Cottontail
(*Sylvilagus transitionalis*)

Developed by:
Steven Fuller, Ph.D.,
and
Anthony Tur
with input from the
New England Cottontail Technical Committee

Approved
November 20, 2012

(Fuller, S. and A. Tur, 2012) Conservation Strategy for the New England Cottontail (Sylvilagus transitionalis)



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New England Cottontail Project at Mashpee NWR

2006 Presence/absence surveys

Pellet Surveys and DNA analysis

Mashpee only refuge in MA with New England Cottontail!



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New England Cottontail Project at Mashpee NWR



Trapping and Tracking
Vegetation Surveys
Habitat Management

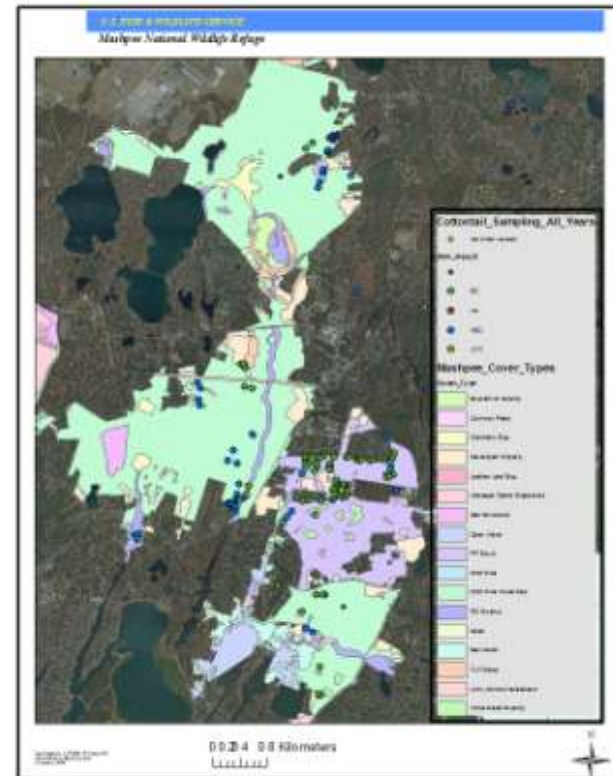


Home range size
Habitat types occupied
Structure of habitat
Effects of habitat management



What we Learned - Sampling

- New England cottontails occur on Mashpee NWR
- Distributed across the refuge in different habitat types
- Eastern cottontails found in the same habitats



What we Learned - Trapping

Weights:

- 952 grams for NEC
- 944 grams for EC

Ear Length:

- ear lengths similar

White patch/Black patch on forehead

- NEC can have white hairs on their forehead

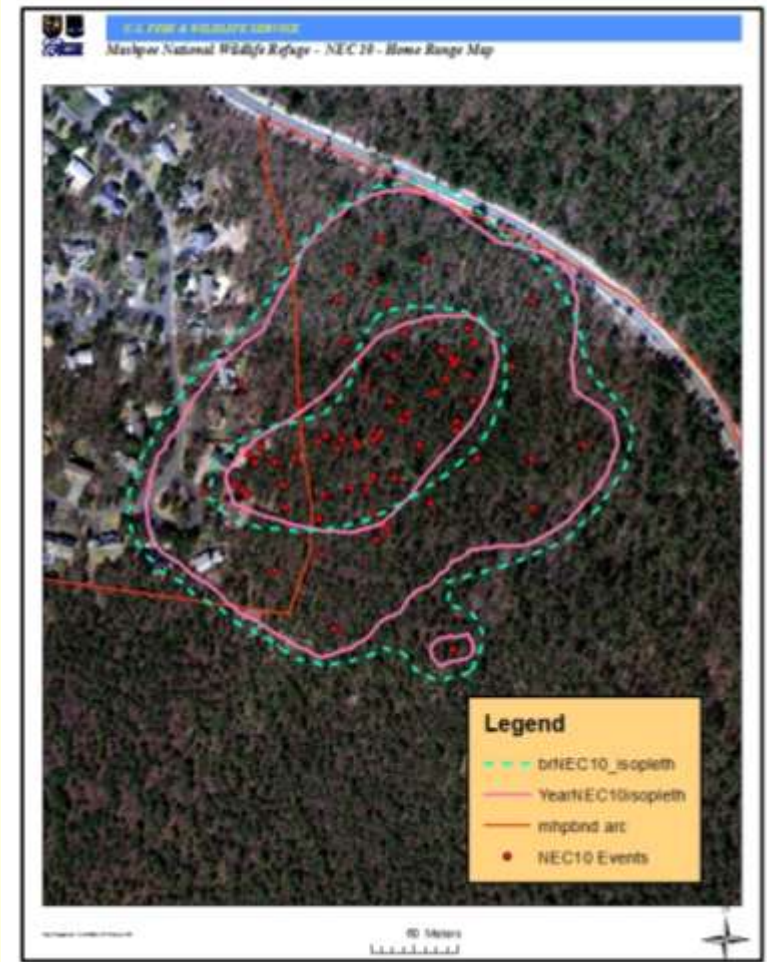


What we Learned - Tracking

Home Range Summary:

Cottontail	Year Round Home Range ≥320	Breeding Home Range (April 1 - Oct 31)	Non-breeding Home Range Nov. 1 - March 31
NEC 5		2 ha (5 acres)	4 ha (10 acres)
NEC8		4 ha (10 acres)	
NEC 10	6 ha (15 acres)	7 ha (17 acres)	
NEC 53			3 ha (7 acres)
NEC 57		12 ha (30 acres)	
NEC 58	8 ha (20 acres)	9 ha (22 acres)	3 ha (7 acres)
NEC 59	24 ha (59 acres)	23 ha (57 acres)	19 ha (47 acres)
NEC 70	7 ha (17 acres)	6 ha (15 acres)	
Average	12 ha (30 acres)	9 ha (22 acres)	8 ha (20 acres)

Cottontail	Year Round Home Range ≥320	Breeding Home Range (April 1 - Oct 31)	Non-breeding Home Range Nov. 1 - March 31
EC 3			3 ha (7 acres)
EC55	20 ha (49 acres)	18 ha (44 acres)	
EC 60			4 ha (10 acres)
EC61	25 ha (62 acres)	25 ha (62 acres)	23 ha (57 acres)
EC 68		2 ha (5 acres)	2 ha (5 acres)
Average	23 ha (57 acres)	15 ha (37 acres)	8 ha (20 acres)



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What we Learned - Tracking

NEC utilized residential areas

NEC crossed roads

EC ranges overlapped with other EC ranges

NEC ranges overlapped with other NEC ranges

EC and NEC ranges did not overlap during our telemetry study

Tracked rabbits survived on average 156 days

Longest tracked rabbit was 398 days which was EC 60, with NEC 10 for 395 days



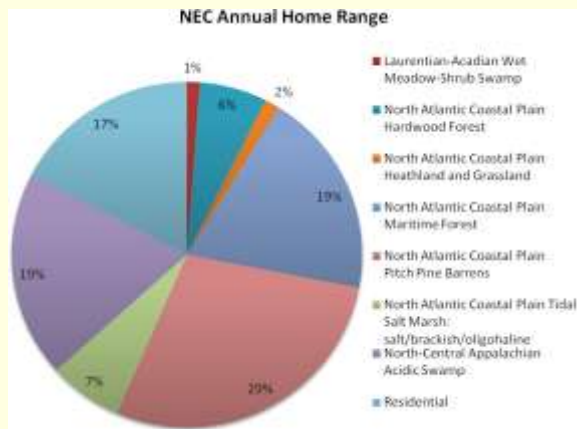
What we Learned - Tracking

Home range studies:

- Connecticut
- Massachusetts Military Reservation
- Mashpee NWR

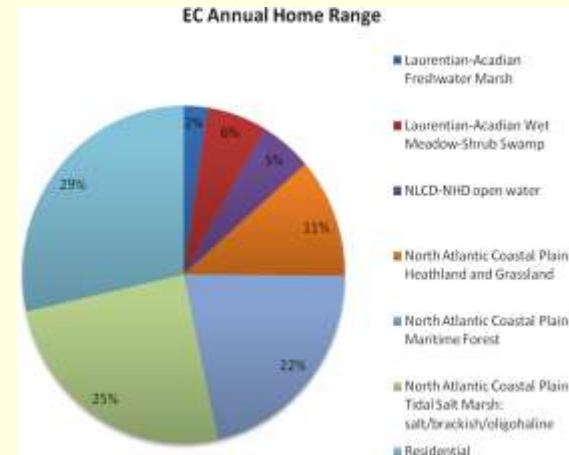


What we Learned – Habitat Use



NEC use:

- North-Central Appalachian Acidic Swamp
- North Atlantic Coastal Plain Pitch Pine Barrens
- North Atlantic Coastal Plain Maritime Forest
- Residential



EC use:

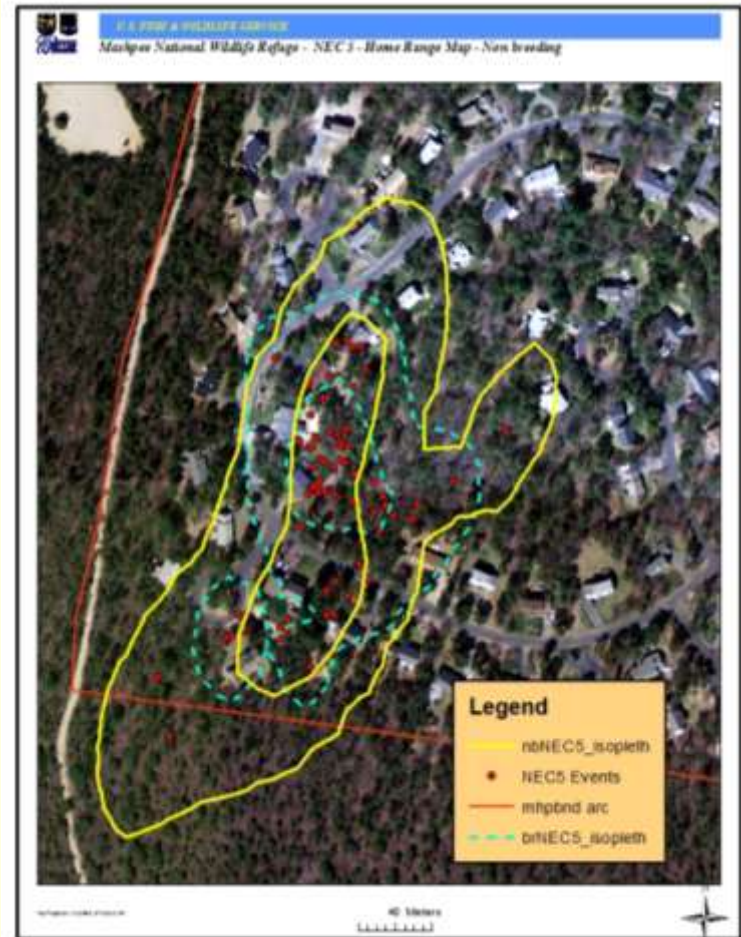
- Residential
- North Atlantic Coastal Plain Tidal Salt Marsh
- North Atlantic Coastal Plain Maritime



What we Learned – Habitat Use

NEC and EC use similar habitats

More work needs to be done to determine if there is a difference in preferred habitat for NEC and EC



What we Hope to Learn – Vegetation Sampling

A prescription for:

- Canopy
- Size of trees
- Understory vegetation height
- Stem density
- Species composition



Habitat Management



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Habitat Management



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Mashpee NWR Habitat Management

Management of this habitat type will benefit lots of other species including:

- Eastern box turtle
- Eastern hognose snake
- Black racer
- Long-eared owl
- Eastern towhee
- Whip-poor-will
- Brown Thrasher
- Several rare moths
- Several rare beetles



New England Cottontail and the Northern Long-eared Bat Connection



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White-Nose Syndrome

- Discovered in 2006 in NY cave
- Impacts hibernating bats in caves
- As far west as Washington, south to Texas and Mississippi, north into Canada
- 90-100% mortality in hibernacula



Species Affected:

- Big Brown
- Eastern Small-footed*
- Little Brown*
- **Northern Long-eared***. **
- Tri-colored*

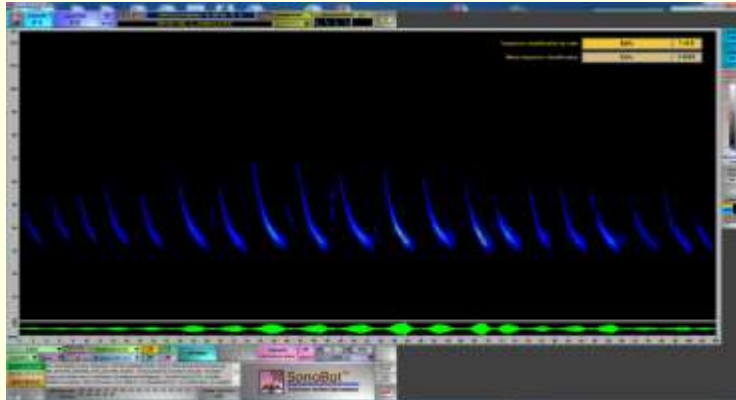
*State listed in MA

**Federally listed



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Bat Monitoring



Acoustic monitoring
Mist netting
Tracking
Roost tree
characteristics
Emergence counts

Goal:

- Species list
- Document Northern Long-eared bats
- Document maternity roost trees



Tracking Northern Long-eared Bats



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What we Learned – Northern Long-eared Bats



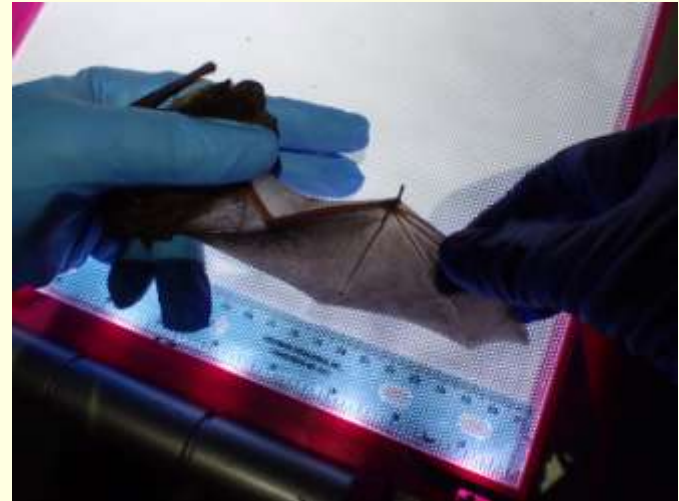
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Mist Netting



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Mist Netting



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What we Learned - Acoustics



Eastern Red Bat
Silver-haired
Little Brown Bat
Hoary Bat
Big Brown



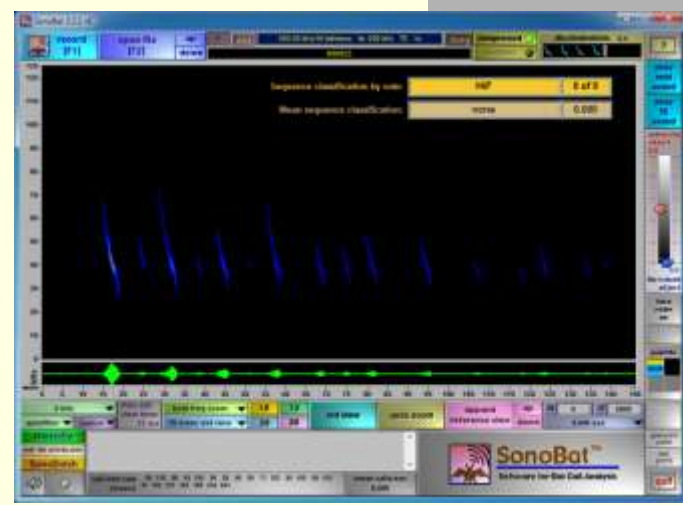
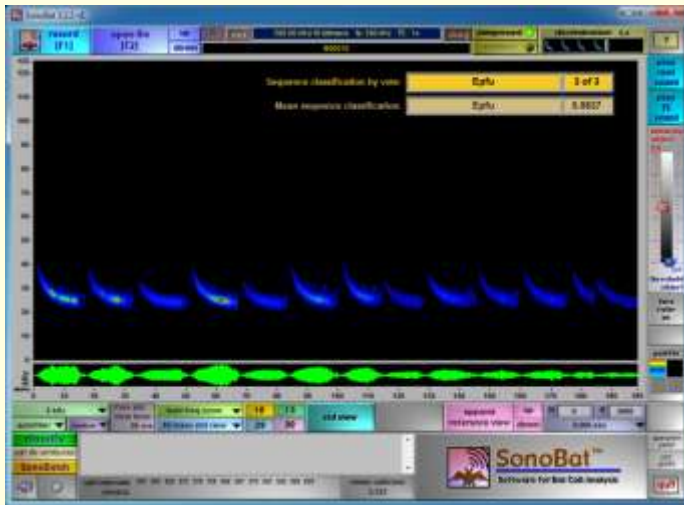
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Acoustic Monitoring



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Acoustic Monitoring



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Bat Monitoring 2017

Continue to:

- Mist net and track Northern Long-eared bats
- Identify Northern Long-eared maternity roosts
- Acoustic surveys



Contact Information

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